```
     (FILE 'HOME' ENTERED AT 14:10:08 ON 12 AUG 2003)

     FILE 'INSPEC' ENTERED AT 14:10:18 ON 12 AUG 2003
L1             0 TEMKIN.AU.
L2           240 TEMKIN
L3          7708 ALN
L4             0 L2 AND L3
L5         13934 GAN
L6             0 L2 AND L5
L7           292 MBE AND L3
L8           221 L7 AND L5
L9         15859 ISLANDS
L10            4 L8 AND L9
L11            2 NIKISHIN
L12       357098 SILICON  OR SI
L13          491 L3 AND L5 AND L12
L14        20255 L12 (4A) SUBSTRATE
L15         9912 SILICON (2A)NITRIDE
L16            7 L13 AND L14 AND L15

     FILE 'STNGUIDE' ENTERED AT 14:31:34 ON 12 AUG 2003

     FILE 'INSPEC' ENTERED AT 14:31:39 ON 12 AUG 2003

     FILE 'CA' ENTERED AT 14:32:32 ON 12 AUG 2003
L17          142 L16
L18            0 L2 AND L17
L19         9710 SIN
L20            2 L17 AND L19
L21            2 SI.SUB.3N.SUB.4
L22        28565 AL (2A)(LAYER OR COATING OR FILM OR ISLANDS)
L23            4 L17 AND L22

=>
```

7/7/1999

ANSWER 6 OF 7 INSPEC (C) 2003 IEE on STN

AN 1994:4738005 INSPEC DN A9419-8115G-011; B9410-0510D-024

TI Interface chemistry and surface morphology in the initial stages of growth of **GaN** and **AlN** on alpha -SiC and sapphire.

AU Sitar, Z.; Smith, L.L.; Davis, R.F. (Dept. of Mater. Sci. & Eng., North Carolina State Univ., Raleigh, NC, USA)

SO Journal of Crystal Growth (Aug. 1994) vol.141, no.1-2, p.11-21. 17 refs.
Price: CCCC 0022-0248/94/$07.00
CODEN: JCRGAE ISSN: 0022-0248

DT Journal

TC Experimental

CY Netherlands

LA English

AB The morphology and interface chemistry occurring during the initial stages of growth of **GaN** and **AlN** layers on alpha (6H)-SiC and sapphire have been examined. Films were grown using gas source molecular beam epitaxy (MBE) equipment containing an electron cyclotron resonance (ECR) plasma source to activate molecular nitrogen. The experiments consisted of sequential depositions of approximately one monolayer followed by X-ray photoelectron spectroscopy (XPS) analysis. Evidence for **silicon nitride** formation on the SiC surface was obtained from the studies of both the **Si** oxidation states and the **substrate** peak intensity dependence on film thickness. The growth of **GaN** on sapphire appeared to occur via Stranski-Krastanov mode, while the growth on SiC showed characteristics of three-dimensional growth. **AlN** grew in a layer-by-layer mode on both substrates.

CC A8115G Vacuum deposition; A6855 Thin film growth, structure, and epitaxy; A8265J Heterogeneous catalysis at surfaces and other surface reactions; A6820 Solid surface structure; A8280P Electron spectroscopy for chemical analysis (photoelectron, Auger spectroscopy, etc.); A7960E Semiconductors and insulators; B0510D Epitaxial growth; B0540 Ceramics and refractories; B2520D II-VI and III-V semiconductors

(4) Yano; US U6045626 A 2000

L20 ANSWER 2 OF 2 CA COPYRIGHT 2003 ACS on STN
AN 136:142234 CA
TI High quality **GaN** layers on **Si**(111) substrates: **AlN** buffer layer optimization and insertion of a **SiN** intermediate layer
AU Hageman, P. R.; Haffouz, S.; Kirilyuk, V.; Grzegorczyk, A.; Larsen, P. K.
CS Research Institute for Materials (RIM), University of Nijmegen, Nijmegen, NL-6525 ED, Neth.
SO Physica Status Solidi A: Applied Research (2001), 188(2), 523-526
CODEN: PSSABA; ISSN: 0031-8965
PB Wiley-VCH Verlag Berlin GmbH
DT Journal
LA English
CC 73-11 (Optical, Electron, and Mass Spectroscopy and Other Related Properties)
AB The authors present a study on the material properties of **GaN** films grown on (111) **Si** substrates by low-pressure metalorg. CVD using **AlN** buffer layers. This buffer layer is optimized with respect to growth temp. and time for the optical and structural properties of the **GaN** epilayers. The insertion of a SixNy intermediate layer significantly increases the optical and structural properties. It results in a redn. of the D0X FWHM to 10 meV and in a 2.5-fold increase of its luminescence intensity. The FWHM of sym. and asym. .omega.-scans are reduced 832-669 arcsec and from 702 to 547 arcsec, resp.
ST gallium **nitride silicon substrate** luminescence
IT Luminescence
(high quality **GaN** layers on **Si**(111) substrates: **AlN** buffer layer optimization and insertion of a **SiN** intermediate layer)
IT Vapor deposition process
(metalorg.; high quality **GaN** layers on **Si**(111) substrates: **AlN** buffer layer optimization and insertion of a **SiN** intermediate layer)
IT 12033-89-5, **Silicon nitride**, uses 24304-00-5, Aluminum nitride (**AlN**) 25617-97-4, Gallium nitride (**GaN**)
RL: DEV (Device component use); USES (Uses)
(high quality **GaN** layers on **Si**(111) substrates: **AlN** buffer layer optimization and insertion of a **SiN** intermediate layer)
RE.CNT 3 THERE ARE 3 CITED REFERENCES AVAILABLE FOR THIS RECORD
RE
(1) de Theije, F; J Cryst 1999, V197, P31
(2) Haffouz, S; Appl Phys Lett 1998, V73, P1278 CA
(3) Vennegues, P; J Cryst Growth 1998, V187, P167 CA

=>